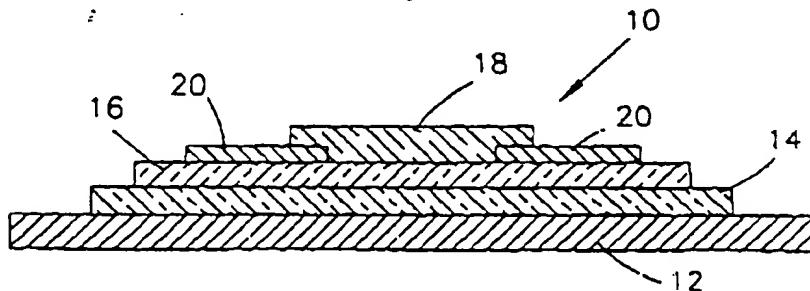


Query/Command : PRT MAX 2-3 5-6 8 10-11 14-15 17 20-21 23 26-27 30 32-35 43 45-46 54 56 71-72 IMG

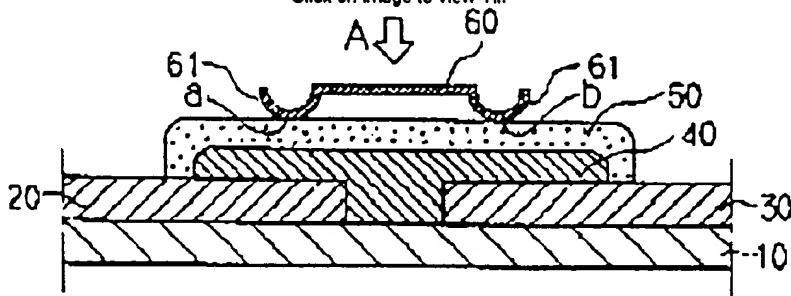
2/77 DWPI - (C) Derwent- image  
AN - 1999-311595 [26]  
XA - C1999-091950  
XP - N1999-232597  
TI - Pressure sensor employing thick-film piezoresistor film has interface to inhibit diffusion  
DC - L03 V01  
PA - (DELC-) DELCO ELECTRONICS CORP  
IN - ELLIS ME  
NP - 2  
NC - 26  
PN - US5898359 A 19990427 DW1999-26 H01C-010/10 15p \*  
AP: 1997US-0994113 19971219  
- EP-924501 A2 19990623 DW1999-29 G01L-009/06 Eng  
AP: 1998EP-0203988 19981125  
DSR: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
RO SE SI  
PR - 1997US-0994113 19971219  
IC - G01L-009/06 H01C-010/10 G01L-001/18  
AB - US5898359 A  
NOVELTY - An interface layer is included between an insulating layer and a piezoresistor film in a sensing structure to inhibit diffusion therebetween in a sensing structure.  
- DETAILED DESCRIPTION - The sensing structure comprises (i) a substrate, (ii) at least one electrical insulating layer, (iii) a thick-film piezoresistor, and (iv) an interface layer between the insulating layer and the piezoresistor, and comprising particulate alumina and zinc oxide suspended in a glass matrix and inhibiting the diffusion piezoresistor constituents into the insulating layer. An INDEPENDENT CLAIM describes a sensor as above for pressure measurement wherein the substrate is a steel alloy diaphragm.  
- USE - The structure is a pressure transducer for e.g. automotive applications involving measurements in high pressure, corrosive fluids.  
- ADVANTAGE - The performance of the sensor is improved by preventing the diffusion of glass frit components between the piezoresistor and insulating layers. The known arrangement using thick-film technology and a steel diaphragm is amenable to mass production techniques. (Dwg.1/12)  
MC - CPI: L03-B01 L03-D04D  
- EPI: V01-A03  
UP - 1999-26  
UE - 1999-29

Click on image to view Tiff



3/77 DWPI - (C) Derwent- image  
 AN - 1999-177448 [15]  
 XP - N1999-130962  
 TI - Structure of variable resistor - varies resistance value between conductors by changing resistance value along thickness direction of pressure-sense resistance film by pressing short circuit member  
 DC - V01  
 PA - (TEIK-) TEIKOKU TSUSHIN KOGYO KK  
 NP - 1  
 NC - 1  
 PN - JP11031606 A 19990202 DW1999-15 H01C-010/10 6p \*  
 AP: 1997JP-0202437 19970711  
 PR - 1997JP-0202437 19970711  
 IC - H01C-010/10  
 AB - JP11031606 A  
 NOVELTY - A pressure-sense resistance film (50) is formed on a resistor pattern (40) connected between conductor patterns (20,30), on which a short circuit member (60) with press members (61) is formed. The resistance value between the conductors is varied by changing the resistance value along thickness direction of resistance film by pressing the short circuit member.  
 - USE - None given.  
 - ADVANTAGE - Structure and design property becomes simple thereby simplifying assembly and attains reduction in size. The texture of variable resistor in electric circuit becomes simple. Endurance and durability are improved. DESCRIPTION OF DRAWING(S) - The figure shows the schematic sectional view of variable resistor. (20,30) Conductor patterns; (40) Resistor pattern; (50) Pressure-sense resistance film; (60) Short circuit member. (Dwg.1/6)  
 MC - EPI: V01-A03 V01-A03B  
 UP - 1999-15

Click on image to view Tiff



10 フレキシブル基板 20, 30 寸体バターン 40 純抵抗バターン  
 50 感圧抵抗膜 60 短絡部材 61 押圧部

本発明の第一実質特許

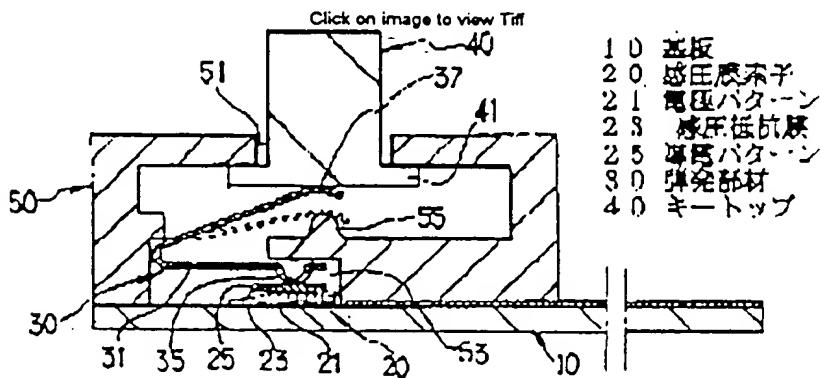
5/77 DWPI - (C) Derwent- image  
 AN - 1997-477309 [44]  
 XP - N1997-398093  
 TI - Pressure sensor type electronic component - includes pressure sensitive film element which is pressed using key top through bullet  
 DC - S02 V01  
 PA - (TEIK-) TEIKOKU TSUSHIN KOGYO KK  
 NP - 1  
 NC - 1  
 PN - JP09223607 A 19970826 DW1997-44 H01C-010/12 6p \*  
 AP: 1996JP-0051062 19960214

PR - 1996JP-0051062 19960214  
 IC - H01C-010/12 H01C-010/10  
 AB - JP09223607 A

The component includes a pressure sensitive film element (20) which is formed over a base material, comprises a pressure sense resistance film (23). A pair of electrode patterns (21) are provided at the either surfaces of the resistance film. An electrically conductive pattern (25) is provided at the top surface of the resistance film.

- A bullet (30) is provided on the surface of the pressure sensitive film element. A key top (40) is provided such that it presses the bullet member. By pressing the key top the bullet member and thereby the pressure sensitive film element is pressed and resistance between the electrode patterns is varied.
- ADVANTAGE - Simplifies assembling work of electronic component. Enables to easily vary resistance value of pressure sensitive film element. (Dwg.1/9)

MC - EPI: S02-F04B1 V01-A03D3  
 UP - 1997-44



本発明にかかる感圧型可変抵抗器を示す図

6/77 DWPI - (C) Derwent- image

AN - 1997-462984 [43]

XP - N1997-385693

TI - Member type pressure sensor - in which resistance between electrode patterns formed on either sides of resistance film varies when film thickness is varied by pressing it

DC - U12 V01 V03

PA - (TEIK-) TEIKOKU TSUSHIN KOGYO KK

NP - 1

NC - 1

PN - JP09213168 A 19970815 DW1997-43 H01H-013/52 6p \*  
 AP: 1996JP-0040681 19960202

PR - 1996JP-0040681 19960202

IC - H01H-013/52 H01C-010/10 H01H-013/00 H01L-029/84

AB - JP09213168 A

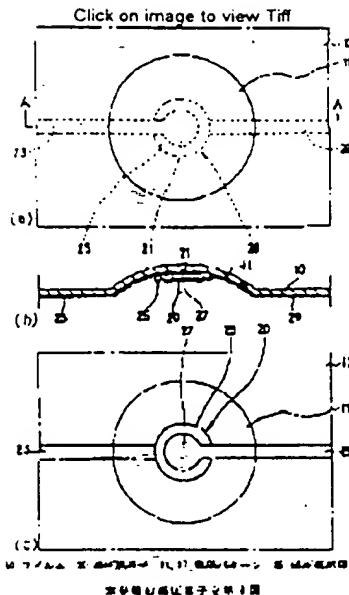
The sensor has a pressure sensing element (20) provided at the lower surface of a dome like pressing part (11) of a film (10). The pressure sensing element includes resistance film (23) on whose either sides of electrode pattern (21,27) is formed.

- When the resistance film is pressed along thickness direction its thickness varies. The resistance between two electrode patterns also get varied.

- ADVANTAGE - Eases mfg technique. Avoids assembly error. (Dwg.1/11)

MC - EPI: U12-B03E V01-A03 V03-C01A Y03-C01A1

UP - 1997-43



8/77 DWPI - (C) Derwent- image

AN - 1997-426208 [40]

XP - N1997-354697

TI - Variable resistive element with polymer-film force-sensing resistor - has deformable body through which pressure exerted by tightening of disc on threaded shaft is transmitted to surrounding sensitive film

DC - S02 V01 X22

PA - (CONT-) CONTELEC AG

IN - RIECK A

NP - 1

NC - 1

PN - DE19606408 A1 19970828 DW1997-40 H01C-010/10 5p \*

AP: 1996DE-1006408 19960221

PR - 1996DE-1006408 19960221

IC - H01C-010/10

AB - DE19606408 A

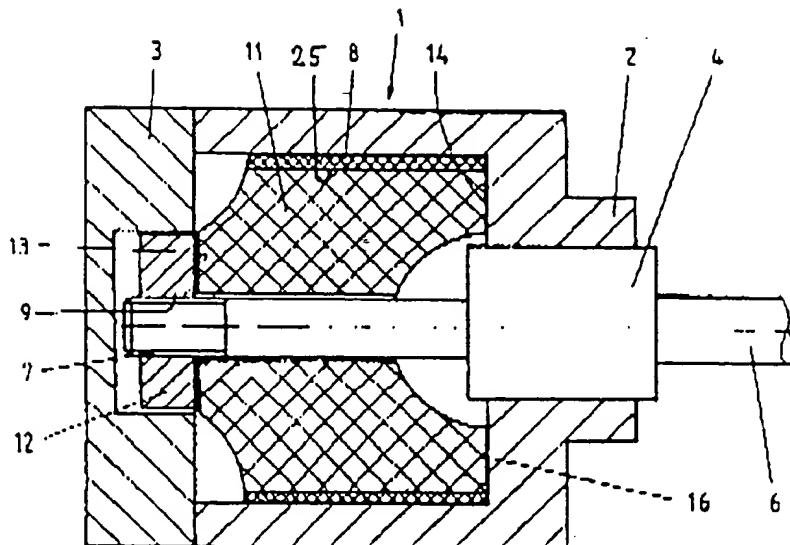
The element has a circular cylindrical housing (2) with a baseplate (3) and a bearing (4) for a rotary shaft (6) having an external thread (7) on to which a pressure disc (12) is screwed. The shaft passes through an elastically deformable body (11) around which the force-sensing resistor (8) has two polymer films with interdigitated electrodes.

- As the shaft is rotated the axial force exerted by the disc on the body is transmitted through the outer radial surface (25) to the resistor, producing a change in its resistance or voltage. Both the film and the body are insensitive to any moisture seeping into the housing.
- USE/ADVANTAGE As e.g. displacement pick-up in automotive technology, device guarantees precise functioning over long period without wear on contact elements. (Dwg.1/2)

MC - EPI: S02-A02A V01-A03C7 V01-A03D3 V01-A03D5 X22-X

UP - 1997-40

Click on image to view Tiff



10/77 DWPI - (C) Derwent- image

AN - 1997-300889 [28]

XA - C1997-097580

TI - Touch sensitive panel for use in computer graphic - has contact conductive photo-transparent organic conductive film formed on dot space for change of electric resistance by touch

DC - A85 L03

PA - (SMSU ) SAMSUNG DISPLAY DEVICES CO LTD  
- (SMSU ) SAMSUNG DENKAN KK

IN - KIM H; KIM HD

NP - 4

NC - 4

PN - GB2308448 A 19970625 DW1997-28 G06K-011/12 15p \*  
AP: 1996GB-0007274 19960409

- DE19615167 A1 19970626 DW1997-31 H01H-013/70 4p  
AP: 1996DE-1015167 19960417

- JP09185458 A 19970715 DW1997-38 G06F-003/033 4p  
AP: 1996JP-0128866 19960524

- KR97049350 A 19970729 DW1999-08 G06F-003/033  
AP: 1995KR-0052016 19951219

PR - 1995KR-0052016 19951219

IC - G06F-003/033 G06K-011/12 H01H-013/70 G06F-003/03 H01C-010/10

AB - GB2308448 A

A touch panel includes a substrate made of a transparent insulated material. A substrate conductive layer is formed on the substrate. A dot space is formed between the substrate conductive layer, and a contact conductive layer formed on the dot space and causing change of electric resistance by external contact on the dot space. The contact conductive layer consists of a photo-transparent organic conductive film.

- USE - As touch panel with contact conductive layer

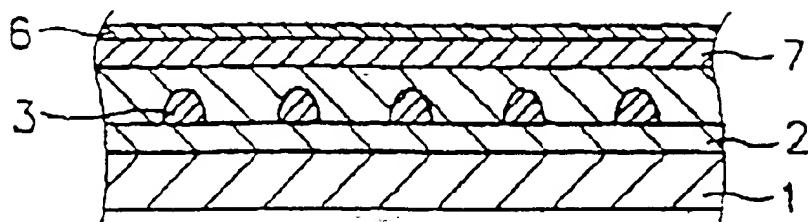
- ADVANTAGE - Provides more efficient structure of touch panel when photo-transmittance and resistance value is about 30-800 ohm/square. The touch panel has economic advantage because it is capable of being used permanently it a photo-transparent organic conductive film is not damaged (Dwg.3/4)

MC - CPI: A12-E11 L03-A02 L03-C

UP - 1997-28

UE - 1997-31; 1997-38; 1999-08

Click on image to view Tiff



---

11/77 DWPI - (C) Derwent- image

AN - 1996-401671 [40]

XP - N1996-338398

TI - Variable speed tactile switch e.g for large motorised vehicle, tiny micromanipulator - has cover which carries electrically conductive film designed to contact conductive film carried upon active area of substrate

DC - U21 V03 X21 X25

PA - (CTSC ) CTS CORP

IN - HAUGH JE

NP - 1

NC - 1

PN - US5550339 A 19960827 DW1996-40 H01H-013/70 8p \*

AP: 1994US-0331422 19941031

PR - 1994US-0331422 19941031

IC - H01H-013/70 H01C-010/10

AB - US5550339 A

The switch includes a planar substrate, an insulating spacer about a periphery of the substrate, and a planar cover. The cover in an active area carries an electrically conductive film designed to contact a conductive film carried upon an active area of the substrate. An insulating spacer and conductive dot are also located at some point within the active area to form a non-contacting rest area.

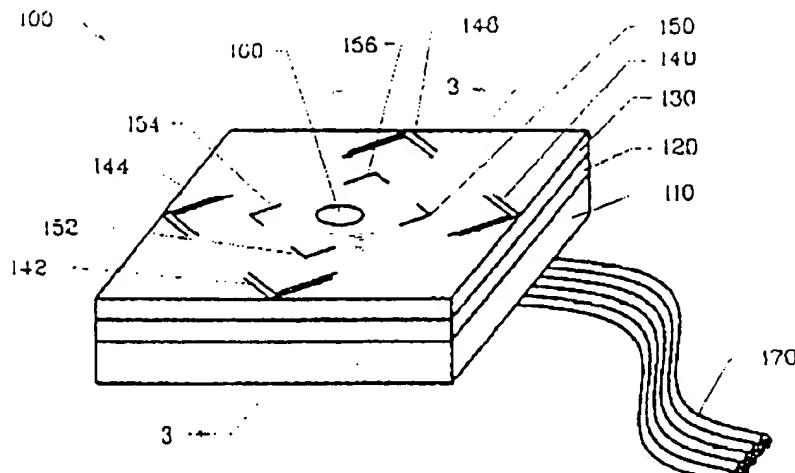
- Appropriate forces applied in a direction normal to the plane of the substrate or cover cause deflection, leading to contact between the cover and the substrate. The point of contact identifies intent, direction and magnitude.

- USE/ADVANTAGE - For vehicles, computers, appliances, toys and laboratory equipment. Provides highly sensitive switch which provides reliable indication of intent, direction and magnitude. (Dwg.1/3)

MC - EPI: U21-B05C V03-C01A2A X21-A01 X25-A03E

UP - 1996-40

Click on image to view Tiff



14/77 DWPI - (C) Derwent- image

AN - 1995-302857 [39]

XP - N1995-229930

TI - Layered pressure sensitive variable resistance transducer - has smooth resistive layer deposited on flexible substrate, with first layer of noninsulative material, and second layer with resistive surface with small points of raised material to maintain layer separation

DC - V01

PA - (YANIGER S I

- (INTE-) INTERLINK ELECTRONICS INC

IN - YANIGER SI

NP - 2

NC - 19

PN - WO9522828 A1 19950824 DW1995-39 H01C-010/10 Eng 26p \*

AP: 1995WO-US01972 19950216

DSNW: CA JP

DSRW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

- US5847639 A 19981208 DW1999-05 H01C-010/10

AP: 1994US-0198149 19940217; 1997US-0939335 19970929

PR - 1994US-0198149 19940217; 1997US-0939335 19970929

CT - JP53145655; JP59135581; US4315238; US4492949; US4495236; US4933660; US4996511

2.Jnl.Ref

IC - H01C-010/10

AB - WO9522828 A

The pressure sensitive transducer comprises a first layer with a noninsulative layer deposited on it, and a second layer deposited adjacent and abutting the first (16, 18). This layer has a resistive surface with small points of raised material (18) deposited on it. - The raised points of material maintain the separation of the two layers.

rs. The first layer makes contact with the second layer in response to an applied pressure (13) and by this provides a variable resistance between the two layers by deforming around the raised points.

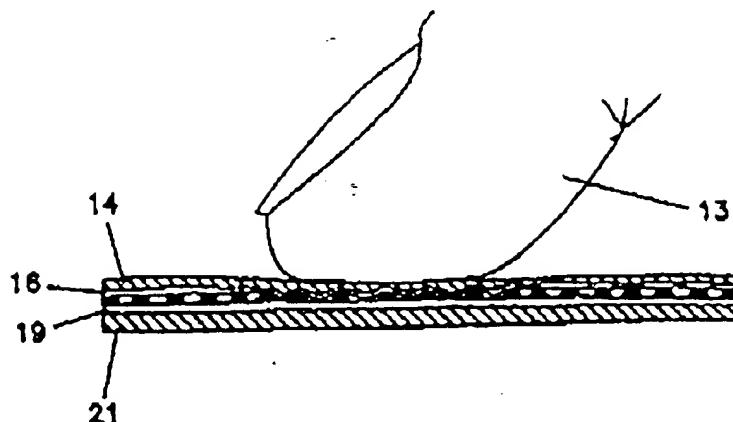
- ADVANTAGE - Utilises conventional resistive film layer with smooth surface and consistent resistivity, employing printing and imaging technology to deposit pattern of nonconducting or semiconducting points of controllable, well-defined dimensions. (Dwg. 3A/8)

MC - EPI: V01-A03C V01-A03D3 V01-A04B V01-A04C V01-A04G

UP - 1995-39

UE - 1999-05

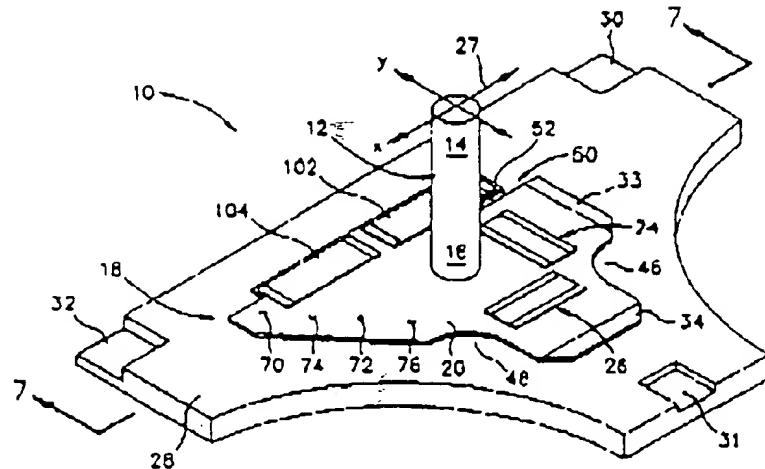
Click on image to view Tiff



15/77 DWPI - (C) Derwent- image  
 AN - 1995-247673 [33]  
 XP - N1995-192350  
 TI - Force transducer for computer joystick - has lever arm flexed at one end by user and connected at other end to substrate holding thick film strain gauges providing X and Y outputs  
 DC - S02 T04 U14  
 PA - (IBMC ) INT BUSINESS MACHINES CORP  
 - (IBMC ) IBM CORP  
 IN - KAMENTSER B; SELKER EJ; SMITH BA  
 NP - 5  
 NC - 6  
 PN - EP-663648 A2 19950719 DW1995-33 G06K-011/18 Eng 23p \*  
 AP: 1995EP-0300094 19950109  
 DSR: DE FR GB  
 - JP07209104 A 19950811 DW1995-41 G01L-001/22 19p  
 AP: 1994JP-0283020 19941117  
 - EP-663648 A3 19951018 DW1996-16 G06K-011/18  
 AP: 1995EP-0300094 19950109  
 - CN1127353 A 19960724 DW1997-49 G01L-001/22  
 AP: 1994CN-0119551 19941220  
 - US5867808 A 19990202 DW1999-12 G06F-003/033  
 AP: 1994US-0181648 19940114; 1996US-0688614 19960806  
 PR - 1994US-0181648 19940114; 1996US-0688614 19960806  
 CT - GB2234629 (Cat. A); US4536746 (Cat. A); WO9209996 (Cat. A);  
 No-SR.Pub  
 IC - G01L-001/22 G06F-003/033 G06K-011/18 G01L-001/18 G01L-005/16  
 H01C-010/10  
 AB - EP-663648 A  
 The computer joystick includes a force transducer. The transducer (10) has a lever (16). This is flexed by the user at its free end (14) while being connected to a substrate (20) at its lower end (16). The sensing element (18) has thick film strain gauges (24,26) detecting force components in the X and Y directions.  
 - The strain gauges are formed by screen printing thick film resistive material directly onto the substrate. Each gauge has a complementary gauge on the underside of the substrate. The sensing element is mounted on a support plate (28) and has electrical connections (70-74) on its surface.  
 - ADVANTAGE - Provides a small force transducer suited to computer joystick use and having good signal to noise ratios. (Dwg.1/11)  
 MC - EPI: S02-F01C S02-F03B S02-K03A2A T04-F02B3 U14-H02  
 UP - 1995-33

UE - 1995-41; 1996-16; 1997-49; 1999-12

Click on image to view Tiff



17/77 DWPI - (C) Derwent- image

AN - 1994-292593 [36]

XP - N1994-230175

TI - Variable resistor with contact element in form of flexible strip - has metallic rods located inside elastic cover perpendicularly to direction of current line

DC - V01

PA - (AVTO=) AVTOELEKTRONIKA SCI PRODN ASSOC

IN - SMYSLOV II

NP - 1

NC - 1

PN - RU2010369 C1 19940330 DW1994-36 H01C-010/10 4p \*  
AP: 1987SU-4362192 19871216

PR - 1987SU-4362192 19871216

IC - H01C-010/10

AB - RU2010369 C

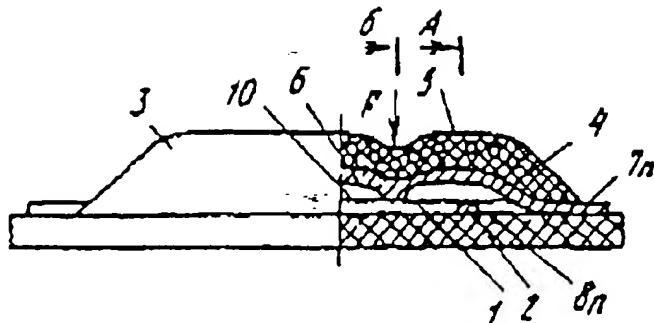
On dielectric solid base (1) a resistive element (1) is fixed in the form of a solid flat film (2) covered with a long lid (3) of dielectric elastic polymer hermetically sealed with its edges (4) to the base (1) (eg. glued). The force concentrated in the middle presses on the ceiling (5) which makes contact of strip (6) with the film (2). Rod (9) distributes the force along the entire length.

- USE/ADVANTAGE - As mechanically controlled variable resistor. Uniform change of resistance from full value to zero. Bul.6/30.3.94 (Dwg.1/4)

MC - EPI: V01-A03 V01-A03B

UP - 1994-36

Click on image to view Tiff



20/77 DWPI - (C) Derwent- image

AN - 1994-057414 [07]

XP - N1994-045158

TI - Hand manipulatable computer input device - has button engaging with first substrate which elastically deforms in response to applied force and causes deformation of conductive film and resistive film

DC - T01 T04

PA - (MICR-) MICRO INTEGRATION CORP

IN - PARSONS JA

NP - 1

NC - 1

PN - USS5287089 - A 19940215 DW1994-07 G06F-003/033 7p \*  
AP: 1992US-0882008 19920513

PR - 1992US-0882008 19920513

IC - G06F-003/033 H01C-010/10

AB - USS5287089 A

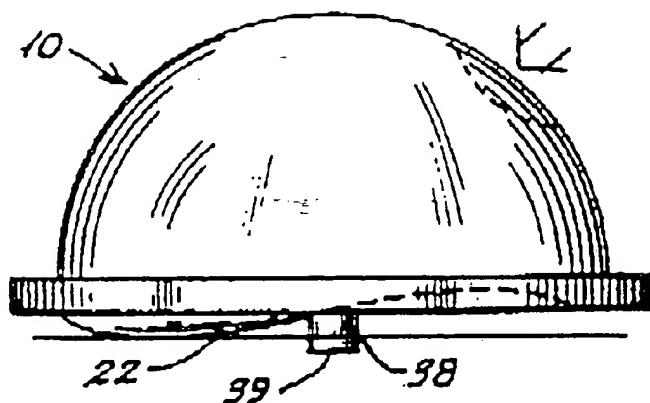
The computer input device includes an elastic actuator button of generally hemispheric shape. An applied force causing an indentation in a curved portion of the button is transmitted via the material of the button to cause a corresponding elastic bulging of a bottom, normally flat portion of the button and of a conductive film and resistive film which are attached to it. During such bulging, a portion of the resistive film is urged into contact simultaneously with two or three oppositely disposed conductive traces. This action can cause a cursor to be moved in a direction corresponding to the direction of force of the push when the device is attached to the proper circuitry.

- The amount of pressure applied to and transmitted through the elastic material of the button determines the size of the area of contact between the resistive film and the pattern of conductive traces and ultimately the speed and/or distance of movement of the cursor in that direction. A central post may protrude from the bottom of the button into a corresponding depression or hole in the base of the device so as to act as a contact or actuator for a separate switch so as to provide a function separately from or in concert with the other functions provided by the control.

- USE/ADVANTAGE - Is replacement for computer mouse, joystick or track ball and performs functions of any of these three input devices. Provides particular printed pattern of interdigitated conductors, a selected portion of which are actuatable according to direction and magnitude of force applied to single actuator button. (Dwg. 4/4)

MC - EPI: T01-C02 T04-F02B

UP - 1994-07



21/77 DWPI - (C) Derwent- image

AN - 1993-361938 [46]

XA - C1993-160340

XP - N1993-279445

TI - Variable resistor for use as a linear fader - comprising a membrane enclosing a resistive material with a slidable contact which exerts a force through it

DC - A85 L03 V01 W04

PA - (COLL/) COLLINS P

IN - COLLINS P

NP - 1

NC - 1

PN - GB2267392 A 19931201 DW1993-46 H01C-010/10 16p \*  
AP: 1993GB-0011124 19930528

PR - 1992GB-0011265 19920528

IC - H01C-010/10

AB - GB2267392 A

A variable resistor comprises a resistive material on one element, at least one membranous layer enclosing it, and a slidably movably element with a contact exerting a force on the resistive material through the membranous layers.

- Pref. the resistive material is an elongate strip.

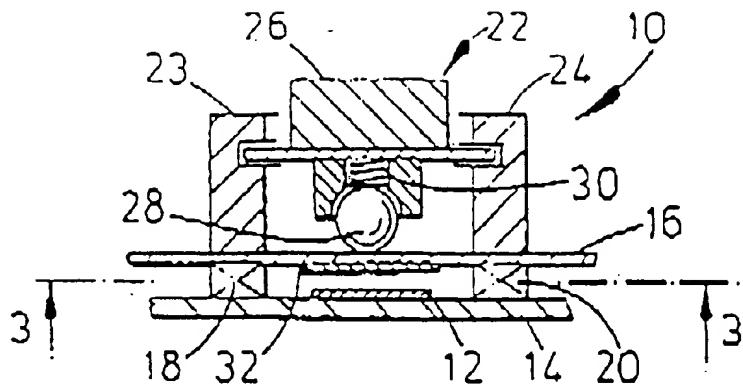
- USE - Linear fader for controlling recording levels. (Dwg. 1/4)

MC - CPI: A12-E07C L03-B01A1

- EPI: V01-A03A1 V01-A03B5 V01-A03C V01-A03C5 V01-A03D1 V01-A03D6  
W04-G05A

UP - 1993-46

[Click on image to view Tiff](#)



23/77 DWPI - (C) Derwent

AN - 1993-229618 [29]

XA - C1993-102197

XP - N1993-176366

TI - Pressure sensing conductor material - has film conductor material with organic molecule film on surface to give higher pressure sensitive conductivity sensitivity NoAbstract

DC - L03 V01 V03 X12

PA - (YOKO ) YOKOHAMA RUBBER CO LTD

NP - 1

NC - 1

PN - JP05151828 A 19930618 DW1993-29 H01B-005/16 4p \*  
AP: 1991JP-0316274 19911129

PR - 1991JP-0316274 19911129

IC - H01B-005/16 H01B-001/20 H01C-010/10 H01H-013/70

MC - CPI: L03-B01

- EPI: V01-A03 V03-A01A V03-C01A X12-D01X X12-D02A

UP - 1993-29

26/77 DWPI - (C) Derwent

AN - 1992-268100 [32]

XP - N1992-205057

TI - Micro-machined silicon potentiometer responsive to pressure - has thin film resistor located on long silicon beam, with thicker part of thin diaphragm partially shorted by metallised deflection stop

DC - S02 U12 V01

PA - (SENS-) SENSYM INC

IN - DAUENHAUER DA; REIMANN H

NP - 1

NC - 1

PN - US5132658 A 19920721 DW1992-32 H01C-010/06 10p \*  
AP: 1990US-0511656 19900419

PR - 1990US-0511656 19900419

IC - H01C-010/06 H01C-010/10

AB - US5132658 A

The force sensor has an elastic beam and comprises first and second surfaces separated by a gap, each surface being formed in a silicon substrate. The first surface is capable of flexing in response to an external force, the second surface being stationary relative to the first and acting as a deflection stop. A resistor is formed on one of the surfaces and has two terminals with a current path between the two terminals.

- An electrode on the other surface acts as a shunt for that portion of

the resistor which comes into contact with the electrode. One of the surfaces includes a central beam located on a diaphragm, the central beam being at least about four times thicker than adjacent portions of the diaphragm. When flexing of the first surface occurs, a resistance in the current path between the two terminals changes in response to the external force.

- USE - Silicon pressure chip operating in a two-wire resistive mode.  
(Dwg.3/7)

MC - EPI: S02-F01C S02-F04B1 S02-F04B3 S02-K03A2A U12-B03E V01-A03C1  
V01-A03C5 V01-A03D3 V01-A03D6

UP - 1992-32

27/77 DWPI - (C) Derwent- image

AN - 1992-230879 [28]

XP - N1992-175675

TI - Pressure-sensitive conductive sheet - has insulator patterns on pressure-sensitive variable-resistance film NoAbstract

DC - V01 X12

PA - (YOKO ) YOKOHAMA RUBBER CO LTD

NP - 1

NC - 1

PN - JP04155707 A 1

9920528 DW1992-28 H01B-005/16 6p \*  
AP: 1990JP-0281587 19901019

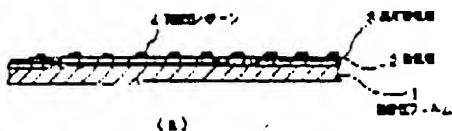
PR - 1990JP-0281587 19901019

IC - H01B-005/16 H01C-010/10

MC - EPI: V01-A03C9 X12-D02A

UP - 1992-28

[Click on image to view Tiff](#)



1a)

239-50014742

1 2

30/77 DWPI - (C) Derwent- image

AN - 1991-181008 [25]

XP - N1991-138562

TI - Sheet-like variable resistor - has film conductive member connected to terminal, part of which is electrified by pressure NoAbstract Dwg 1,2/6

DC - V01

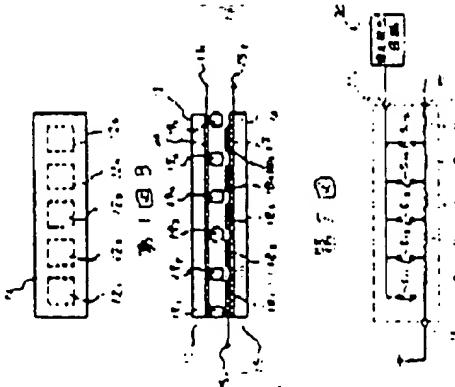
PA - (CANO ) CANON KK

NP - 1

NC - 1

PN - JP03108701 A 19910508 DW1991-25 \*  
AP: 1989JP-0247276 19890922  
PR - 1989JP-0247276 19890922  
IC - H01C-010/10  
MC - EPI: V01-A03  
UP - 1991-25

[Click on image to view Tiff](#)



32/77 DWPI - (C) Derwent- image  
AN - 1991-010626 [02]  
XP - N1991-008276  
TI - Sheet-like switch activated via e.g. ball-point pen - has two electrodes of non-conductive flexible film having conductive surfaces facing each other, separated via small spacers  
DC - V03 :  
PA - (MITQ ) MITSUBISHI DENKI KK  
IN - KOBUKURO M; YAGITA K; OBUKURO M  
NP - 4  
NC - 2  
PN - GB2233499 A 19910109 DW1991-02 \*  
AP: 1990GB-0013635 19900619  
- DE4020472 A 19910110 DW1991-03  
AP: 1990DE-4020472 19900627  
- DE4020472 C2 19930304 DW1993-09 H01H-013/70 15p  
AP: 1990DE-4020472 19900627  
- GB2233499 B 19940302 DW1994-07 H01H-013/52 2p  
AP: 1990GB-0013635 19900619  
PR - 1990JP-0066649 19900316; 1989JP-0166052 19890628; 1989JP-0174561  
19890706  
IC - H01H-013/52 H01H-013/70 G06K-011/12 H01C-007/00 H01C-010/10 H01H-001/14  
AB - GB2233499 A  
The switch comprises a first electrode composed of a non-conductive flexible film (10) having a conductive film (10A) on one surface and a second electrode composed of a non-conductive film (12) having a conductive film (12A) on one surface facing the first electrode and a number of insulative spacers (14) mounted on at least one of the electrodes. The spacers (14) are of very small dimension - lateral dimensions of 50 microns or less and a height of 15 microns or less, whereby the insensitive zone areas of the switch are of reduced size. The spacers (14) may be formed from a photoresist. A protective coating of plastics containing metal or metal oxide particles may be formed upon the conductive film (10A). In a further embodiment, the conductive films (10A, 12A) are coated with resistance layers of plastics containing metal or metal oxide particles and metal coated transparent balls of 5-10 microns diameter.

- (31pp Dwg. No. 1/12)

DEAB- DE4020472 C

An electrode (9A) with a non conducting sheet (10) of flexible and optically transmitting material, has an inner layer of conductive material formed from gold, nickel, palladium or other suitable material. Connecting elements are formed (11A, 11B) at both ends.

- The second electrode (9B) has a conductive thin layer (12A) on a non conductive substrate (12) that has a rigid form, e.g. glass. On the surface of the conductive layer are spacers (14) formed in an etching process. A probe can be moved across the top surface causing local deflections between spacers and causing the conductive layers to contact to generate outputs.

- ADVANTAGE - Simplifies surface switch panel.

- od (Dwg. 3/12)

GBAB- GB2233499 B

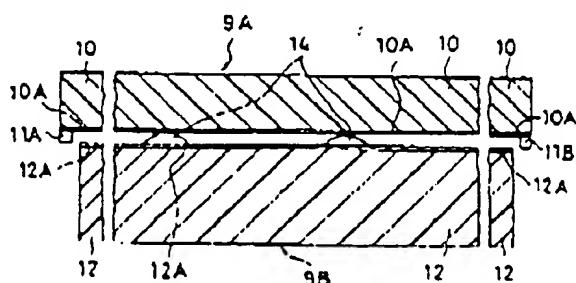
A sheet-like switch comprising: a first sheet-like electrode composed of a non-conductive flexible substrate having a conductive film of metal or metal oxide on a surface thereof; a second sheet-like electrode composed of a non-conductive substrate having a conductive film of metal or metal oxide on a surface thereof, which first and second sheet-like electrodes are arranged one opposite to the other with said conductive films facing; and a multiplicity of insulative spacers mounted on one or both conductive films at predetermined spaced intervals, arranged to separate said first and second electrodes; which sheet-like switch is characterised in that: each spacer is attached to the or each respective conductive film by an intervening layer of plastics material containing dispersed metal or metal oxide particles and having embedded in its surface a multiplicity of protruding metal coated balls of 5 to 10  $\mu$ m diameter. (Dwg. 1/2)

MC - EPI: V03-A01B V03-B09 V03-C01A

UP - 1991-02

UE - 1991-03; 1993-09; 1994-07

[Click on image to view Tiff](#)



33/77 DWPI - (C) Derwent- image

AN - 1991-008337 [02]

XP - N1991-006550

TI - Touch-control light dimming switch - uses flexible zone of front cover plate to operate membrane switch or membrane voltage divider

DC - V03 X26

PA - (LUTR-) LUTRON ELECTRONICS CO

IN - ALEO MJ; KWIATKOWSK RJ; ROWEN MJ; DALEO M; KWIATKOWSKI RJ; DALEO MJ

NP - 5

NC - 4

PN - DE4019211 A 19910103 DW1991-02 \*

AP: 1990DE-4019211 19900615

- GB2233841 A 19910116 DW1991-03

AP: 1990GB-0008358 19900412

- JP03095813 A 19910422 DW1991-22

- USS196782 A 19930323 DW1993-14 G05F-005/02 13p  
AP: 1989US-0372575 19890628; 1991US-0772627 19911004
- GB2233841 B 19940202 DW1994-04 H05B-037/02 2p  
AP: 1990GB-0008358 19900412

PR - 1989US-0372575 19890628; 1991US-0772627 19911004

IC - G05F-005/02 H05B-037/02 G05F-001/10 H01C-010/10 H01H-013/04  
H01H-013/76 H01H-021/00 H02B-015/00 H02J-013/00 H02M-005/04  
H02P-007/00 H05B-039/04

AB - DE4019211 A

The touch-control light dimming switch has a front cover plate (21) incorporating a flexible zone (23) which is depressed upon contact to close electrical contacts providing a corresp. signal used to adjust the power level supplied to the electrical load.

- Pref. the front cover plate has a flat smooth surface and is made from ABS plastics with an area of reduced thickness providing the flexible zone (23), which is depressed to operate a **membrane** voltage divider providing the signal representing the required light level. The selected lighting level may be indicated by an incorporated optical display.

- ADVANTAGE - Aesthetic appearance and simple operation. (13pp  
Dwg. No. 3/7)

GBAB- GB2233841 B

A touch-operable power control device for controlling power from a source to a load, said device comprising, in combination : a) a cover plate having a planar and smooth front surface and an opposing back surface, a portion of said back surface being recessed to define a flexible web of material that overlies a pocket; b) a substantially rigid plate spaced from and parallel to said flexible web of material; c) touch-operable means located in said pocket and positioned between said rigid plate and flexible web for providing a signal in response to pressure applied to said flexible web; and d) circuit means for determine the power applied to said load in accordance with the location of the pressure applied to said flexible web. (Dwg. 0/0)

USAB- USS196782 A

The system to control power from a source to a load consists of a cover plate, a touch-operable device that is mounted behind a flexible area on the cover plate, and a power control circuit that responds in accordance with a signal generated by the touch-operable device. The system is operated by touching a point within the flexible area of the cover plate to activate the device. The system provides power over a continuous range of values, depending on the particular point at which the device is activated. Alternatively, the system operates as a switch, alternatively turning power on or off when any point on the flexible area is touched.

- The control circuit preferably includes an electronically adjustable voltage divider. The system is well-adapted to permit control of power to a load from multiple locations. The appearance of the front surface of the cover plate can be dictated entirely by aesthetic considerations and can, if desired, be entirely featureless.

- USE - Wallbox mountable power control. Load may be

light source, e.g.

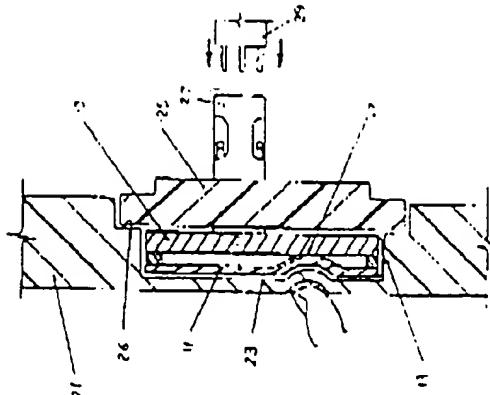
incandescent or gas discharge lamp, or motor, etc. (Dwg. 5/7)

MC - EPI: V03-C01A1 X26-C03A

UP - 1991-02

UE - 1991-03; 1991-22; 1993-14; 1994-04

Click on image to view Tiff



34/77 DWPI - (C) Derwent

AN - 1990-382755 (51)

XA - C1990-166661

XP - N1990-291782

TI - Glass **membrane** touch-control circuit for voltage selection - has **membrane** spaced by dielectric layer adhesively joined between upper **membrane** and lower rigid support

DC - A85 L03 V03 X27

AW - POLYESTER

PA - (SPEC-) SPECTRA SYMBOL CORP

IN - GREENHALGH VB

NP - 3

NC - 18

PN - US4975676 A 19901204 DW1990-51 \*

AP: 1989US-0435988 19891113

- WO9209994 A1 19920611 DW1992-26 H01C-010/10 Eng 49p #

DSNW: AU CA JP KR

DSRW: AT BE CH DE DK ES FR GB GR IT LU NL SE

- AU9169516 A 19920625 DW1992-39 H01C-010/10

FD: Based on WO9209994

AP: 1990WO-US06936 19901128; 1991AU-0069516 19901128

PR - 1989US-0435988 19891113

CT - US4194099; US4218603; US4220815; US4250495; US4310839; US4975676

IC - H01C-010/10 H01C-010/12 H01H-009/26

AB - US4975676 A

Apts. comprises (1) a flexible **membrane** for activating electrical contact between first and second circuits in response to tactile pressure exerted on **membrane**. The **membrane** comprises one of circuit and a continuous topmost glass layer having sufficient flexibility to permit flexible movement of glass layer together with one circuit to a point of electrical contact with the other circuit when tactile pressure is applied to glass layer. The glass layer has sufficient elasticity to permit glass layer together with one circuit to return to a point of non-electrical contact with the other circuit when tactile pressure is removed from glass layer. (2) Support layer for holding other circuit stationary; and (3) spacer for spacing flexible **membrane** from support layer so as to prevent electrical contact between first and second circuits until tactile pressure is exerted. Pref. flexible **membrane** comprises a polyester layer adhesively joined at one surface to said glass layer, and where one circuit is carried by another surface of polyester layer which is opposite to one surface. The support layer comprises a polyester layer adhesively joined at one surface to an inflexible glass layer. The other circuit is carried by another surface of the polyester layer which is opposite to the surface joined to inflexible glass layer. USE/ADVANTAGE - A

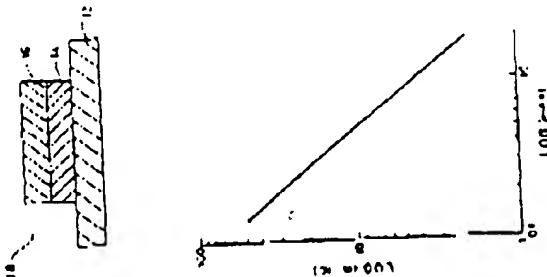
membrane-type electrical control panel apparatus for activating electrical contact between a first and second electrical circuit by flexible movement of one of circuit means in relation to the other in response to tactile pressure exerted on membrane-type control panel apparatus, used for touch controlled appts. for voltage selection in control panels requiring high temp., resistant. (12pp Dwg. No. 3/4)

MC - EPI: V03-A01 V03-A03 V03-C01A2 X27-C  
 UP - 1990-51  
 UE - 1992-26; 1992-39

---

35/77 DWPI - (C) Derwent- image  
 AN - 1990-228898 [30]  
 TI - Laminate pressure-sensitive material - comprises lamination of pressure-sensitive conductive films differing in conductivity  
 NoAbstract Dwg 1,2/2  
 DC - S02 V01  
 PA - (YOKO ) YOKOHAMA RUBBER CO LTD  
 NP - 1  
 NC - 1  
 PN - JP02158105 A 19900618 DW1990-30 \*  
 AP: 1988JP-0313600 19881212  
 PR - 1988JP-0313600 19881212  
 IC - G01L-001/20 G01L-009/06 H01C-010/10  
 MC - EPI: S02-F01 S02-F04B1 V01-A03  
 UP - 1990-30

Click on image to view Tiff




---

43/77 DWPI - (C) Derwent  
 AN - 1988-120263 [18]  
 XP - N1988-091232  
 TI - Trigger stick e.g. for electronic percussion equipment - uses switching foil with resistance dynamically changing when film is compressively loaded  
 DC - P86 V01 W04  
 PA - (LINK-) LINK J KG  
 IN - PLAASLINK A  
 NP - 1  
 NC - 1  
 PN - DE3634912 A 19880428 DW1988-18 5p \*  
 AP: 1986DE-3634912 19861014  
 PR - 1986DE-3634912 19861014  
 IC - G10H-001/34 H01C-010/10  
 AB - DE3634912 A  
 The trigger stick(s) arrangement includes at least one tube (bar) (1) pref. mounted on a stand. The electrically conducting bar (1) has a switching film (2) glued to it to provide an electrically conducting connection to the electrical conductor (4) joined to an electrical

connector (3). The tube (1), film (2) together with connector (3) and conductor (4) are all enclosed by a protective hose (5).

- The switching foil (2) is designed so that its resistance dynamically changes when the film is compressively loaded. Current variations through the film are transmitted via the conductor (4) to the associated electronic percussion device, so that large current variations give strong amplification of the percussion sequence signals, and weak signals correspondingly result from small current changes.

- USE/ADVANTAGE - Percussion equipment e.g. for drummer. Triggers stored (programmed) percussion effects sequences.

MC - EPI: V01-A03 W04-U04  
UP - 1988-18

---

45/77 DWPI - (C) Derwent

AN - 1987-277443 [39]

XA - C1987-117902

XP - N1987-207946

TI - Tactile sensing skin for movable member - has continuous carbon layers and electrodes on facing surfaces of dielectric films which are pref. polyester

DC - A85 P62 S02 T06 V01 X25

PA - (MECA-) MECANOTRON CORP

IN - ALVITE JG

NP - 4

NC - 3

PN - US4694231 A 19870915 DW1987-39 7p \*

AP: 1986US-0853637 19860418

- DE3713144 A 19871022 DW1987-43

AP: 1987DE-3713144 19870416

- GB2189889 A 19871104 DW1987-44

AP: 1987GB-0009118 19870415

- GB2189889 B 19891129 DW1989-48

PR - 1986US-0853637 19860418

IC - B25J-019/02 G01K-007/22 G01L-001/16 G01L-009/06 G05D-015/00  
G08B-021/00 H01C-010/10

AB - US4694231 A

Skin comprises two flexible dielectric film insulating layers (54, 58), a carbon-base electrically conductive compound (56) uniformly applied to one of the two facing film surfaces, and electrically conductive metal compound (62) applied to the other facing surface. The compounds are contiguous over the interface between the films, and the metal compound is applied selectively to form pairs of conductive regions spaced by a dielectric gap.

- A constant potential difference is maintained between the regions of each pair, there is a flexible resilient fibre matting layer (66) attached to the outermost film surface and an elastically deformable outer layer (70) secured over the matting. A controller is responsive to current flowing between regions to regulate travel of the member. The films are pref. each a single sheet of polyester film and the metal compound is silver oxide.
- USE/ADVANTAGE - For a robotic arm. It is inexpensive so that it can be applied over the entire arm surface, and enhances safety for workpieces, equipment and operators. (1/4)

GBAB - GB2189889 B

A moveable member having a tactile sensing skin including: a first flexible dielectric film forming a first insulative layer mounted with respect to the outside surface of the moveable member, and having a first surface facing outwardly away from said member; a second flexible and dielectric film forming a second insulative layer adjacent said first insulative layer, and having a second surface facing said first surface; a carbon base electrically conductive compound substantially uniformly applied to one of said first and second surfaces; an electrically conductive metallic compound

selectively applied to the other of said surfaces, whereby said metallic compound and carbon base conductive compounds are continuous over the interface between said first and second films, said metallic compound being selectively applied to form a plurality of discrete pairs of first and second electrically conductive regions and a dielectric gap between said conductive regions of each pair; a means for establishing a substantially constant potential difference between the first conductive region and second conductive region in each pair; a first matting of resilient fibre forming a first flexible layer attached to the outwardly facing surface of said second film; an elastically deformable outer layer attached to the outwardly facing surface of said first flexible layer; and a control means responsive to changes in the amount of electrical current flowing between said first and second electrically conductive regions, for controlling travel of said member.

- GB2189889 B

A moveable member having a tactile sensing skin including: a first flexible dielectric film forming a first insulative layer mounted with respect to the outside surface of the moveable member, and having a first surface facing outwardly away from said member; a second flexible and dielectric film forming a second insulative layer adjacent said first insulative layer, and having a second surface facing said first surface; a carbon base electrically conductive compound substantially uniformly applied to one of said first and second surfaces; an electrically conductive metallic compound selectively applied to the other of said surfaces, whereby said metallic compound and carbon base conductive compounds are continuous over the interface between said first and second films, said metallic compound being selectively applied to form a plurality of discrete pairs of first and second electrically conductive regions and a dielectric gap between said conductive regions of each pair; a means for establishing a substantially constant potential difference between the first conductive region and second conductive region in each pair; a first matting of resilient fibre forming a first flexible layer attached to the outwardly facing surface of said second film; an elastically deformable outer layer attached to the outwardly facing surface of said first flexible layer; and a control means responsive to changes in the amount of electrical current flowing between said first and second electrically conductive regions, for controlling travel of said member.

MC - CPI: A05-E01D3 A09-A03 A11-C04B2 A12-E A12-S06

- EPI: S02-F04 T06-D07B V01-A03 X25-A03E X25-A03F

UP - 1987-39

UE - 1987-43; 1987-44; 1989-48

46/77 DWPI - (C) Derwent

AN - 1987-238226 [34]

TI - Display panel with touch switch - has thin display element spaced from transparent resistance change type membrane NoAbstract Dwg 1/3

DC - P85 U21 W05

PA - (HONF ) YAMATAKE HONEYWELL CO LTD

NP - 1

NC - 1

PN - JP62160623 A 19870716 DW1987-34 8p \*  
AP: 1986JP-0002109 19860110

PR - 1986JP-0002109 19860110

IC - G09F-009/00 H01C-010/10 H01H-036/00 H03K-017/96

MC - EPI: U21-B02C W05-E02

UP - 1987-34

54/77 DWPI - (C) Derwent

AN - 1986-030269 [05]

XP - N1986-021824

TI - Touch keying device of electronic instrument - has pressure sensitive element sandwiched between conductor on folded insulator

DC - P86 W04

PA - (NIHG ) NIPPON GAKKI SEIZO KK

IN - ASAHI Y; YAMAUCHI T

NP - 5

NC - 4

PN - EP-169624 A 19860129 DW1986-05 Eng 26p \*

AP: 1985EP-0300623 19850130

DSR: DE GB

- US4615252 A 19861007 DW1986-43

AP: 1985US-0695098 19850125

- EP-169624 B 19881026 DW1988-43 Eng

DSR: DE GB

- DE3565902 G 19881201 DW1988-49

- KR9006581 B 19900913 DW1991-39

PR - 1984JP-U011642 19840201

CT - US3960044; US4213367

IC - G01H-001/24 G10H-001/05 H01C-010/10 H01L-041/08

AB - EP-169624 B

An elongate insulating sheet (22) has at least one set of conductive pattern films (24,25) on its surface and is folded, pref. so that the pattern films face each other, and are spaced apart by a pressure sensitive element (23). The pressure sensitive element (23) is operated so that its electrical characteristics change according to pressure applied from a key depression (11) to generate an output. The output is extracted by the conductive pattern films and the position of the element is determined e.g. by adhesive.

- The sheet may be folded widthwise or lengthwise. Pref., one conductive

film is common to plural keys, and the second pattern corresponds to single keys. Pref., also the pressure element has a rectangular section and is made of a laminate of elements having different characteristics.

- ADVANTAGE - Easy to assemble. (26pp Dwg.No.1/10)

EPAB- EP-169624 B

A touch control apparatus for an electronic keyboard (10) instrument, comprising a sensor having: an elongated insulating sheet (22), a pressure-sensitive element (23) operable such that electrical characteristics thereof change according to a pressure applied thereto to generate an output, and means (26; P1,P2) for regulating a position of said pressure-sensitive element, wherein said sensor is arranged at a position such that a pressure is applied to the sensor in accordance with a depression of a key (11) of the instrument, characterized in that the elongated insulating sheets has at least one set of conductive pattern films (20, 25) on a surface thereof, said elongated insulating sheet is folded and said set comprises first and second conductive pattern films formed to be spaced apart from each other, the pressure-sensitive element is sandwiched in a space defined by said folded elongated insulating sheet so as to be in contact with said conductive pattern film, said output, is extracted by said set of conductive pattern films, and said position is regulated with respect to said elongated insulating sheet. (12pp)

- EP-169624 B

A touch control apparatus for an electronic keyboard (10) instrument, comprising a sensor having: an elongated insulating sheet (22), a pressure-sensitive element (23) operable such that electrical characteristics thereof change according to a pressure applied thereto to generate an output, and means (26; P1,P2) for regulating a position of said pressure-sensitive element, wherein said sensor is arranged at a position such that a pressure is applied to the sensor in accordance with a depression of a key (11) of the instrument, characterized in that the elongated insulating sheets has at least one set of conductive pattern films (20, 25) on a surface thereof, said elongated insulating sheet is folded and said set comprises first and second conductive pattern films formed to be spaced apart from each other, the pressure-sensitive element is sandwiched in a space defined by

said folded elongated insulating sheet so as to be in contact with said conductive pattern film, said output, is extracted by said set of conductive pattern films, and said position is regulated with respect to said elongated insulating sheet. (12pp)

USAB- US4615252 A

The touch control apparatus comprises a sensor with an elongated insulating sheet having a set of first and second conductive pattern films on a surface. The insulating sheet is folded and the set of first and second conductive pattern films are formed to be spaced apart from each other. A pressure-sensitive element sandwiched in a space defined by the folded sheet so as to be in contact with the conductive pattern films.

- The pressure-sensitive element is operated such that electrical characteristics change according to a pressure applied to generate an output. The output is extracted by the set of conductive pattern films. The position of the pressure-sensitive element sandwiched by the sheet is regulated with respect to the sheet.

- USE - Electronic keyboard. (9pp)i

MC - EPI: W04-U04

UP - 1986-05

UE - 1986-43; 1988-43; 1988-49; 1991-39

56/77 DWPI - (C) Derwent

AN - 1985-260667 [42]

TI - Transduc

er for converting pressure to electricity - is composed of conductive porous film, and has excellent resolution to detect position boaded by pressure NoAbstract Dwg 7/7

DC - T01 V01

PA - (ASAHI ) ASAHI CHEM IND CO LTD

NP - 1

NC - 1

PN - JP60175401 A 19850909 DW1985-42 3p \*  
AP: 1984JP-0030189 19840222

PR - 1984JP-0030189 19840222

IC - G06F-003/03 H01C-010/10

MC - EPI: T01-C02 V01-A03

UP - 1985-42

71/77 DWPI - (C) Derwent

AN - 1981-F7384D [25]

TI - Pressure sensitive electric switch - includes several conductors side-by-side or stacked, resistive unit incorporating molybdenum di:sulphide particles

DC - P86 U12 U21 V01 V03 W04

PA - (EVEN/) EVENTOFF F N

- (FRAN-) FRANKLIN NEAL EVENT OFF

IN - CHRISTIANSEN MT; EVENTOFF FN; TCHEREPNIN SA

NP - 20

NC - 9

PN - GB2064873 A 19810617 DW1981-25 \*  
AP: 1980GB-0037047 19801119

- NL8006409 A 19810616 DW1981-27

- SE8008205 A 19810629 DW1981-29

- US4276538 A 19810630 DW1981-29

- FR2470435 A 19810605 DW1981-30

- DE3044384 A 19810827 DW1981-36

- US4301337 A 19811117 DW1981-49

- US4314228 A 19820202 DW1982-07

- US4315238 A 19820209 DW1982-08

- CA1143030 A 19830315 DW1983-15

- CA1153577 A 19830913 DW1983-41

- CA1153801 A 19830913 DW1983-41

- CA1153802 A 19830913 DW1983-41

- CA1153803 A 19830913 DW1983-41
- CA1161921 A 19840207 DW1984-11
- GB2064873 B 19840905 DW1984-36
- SE-452925 B 19871221 DW1988-02
- IT1143185 B 19861022 DW1988-30
- JP05196524 A 19930806 DW1993-36 G01L-009/00  
AP: 1988JP-0225513 19790924; 1992JP-0041411 19790924
- DE3044384 C2 19940511 DW1994-17 H01C-010/12 13p  
AP: 1980DE-3044384 19801125
- PR - 1980US-0140937 19800416; 1979US-0097610 19791126; 1980US-0110416  
19800107; 1980US-0135286 19800331; 1980US-0135386 19800331;  
1980US-0140921 19800416; 1979US-0078323 19790924
- IC - G01L-009/00 H01C-010/12 C11D-009/44 G01L-001/20 G10H-001/02  
G10H-001/053 G10H-001/34 G10K-000/00 H01C-001/16 H01C-010/10  
H01H-001/02 H01H-013/52 H01H-035/00 H01L-049/00 H03K-017/56  
H03K-017/96 H04R-021/00 H01L-029/84
- AB - GB2064873 A  
A pressure responsive electric switch has at least one pair of first (104) and second (112) conductors in spaced-apart relationship with at least one pressure sensitive resistive conductor (106,114) is disposed in a position to interconnect the conductors when a force is applied.  
- The design may be incorporated in multiple touch switches having the conductors (220,240) disposed side by side or stacked one above the other. The resistive conductor may be made from molybdenum disulphide particles with a resin binder and may include powdered carbon.
- DEAB- DE3044384 C  
The pressure transducer uses a resistance element, exhibiting a resistance value which varies as a reciprocal of the applied perpendicular pressure. The resistance element has 2 semiconductor resistance layers (106,114) between 2 conductor elements (104,112), each carrying one of these layers.  
- Pref. the resistance layers are formed from molybdenum disulphide using particles with a particle size of between 1 micron and 10 micron suspended in a binder. At least one of the conductor elements is pref. elastic, or coupled to an elastically deformable membrane.  
- USE - For pressure-sensitive switch, e.g. for switch keyboard.  
(Dwg.1/14))
- GBAB- GB2064873 B  
A pressure responsive electric switch has at least one pair of first (104) and second (112) conductors in spaced-apart relationship with at least one pressure sensitive resistive conductor (106,114) is disposed in a position to interconnect the conductors when a force is applied.  
- The design may be incorporated in multiple touch switches having the conductors (220,240) disposed side by side or stacked one above the other. The resistive conductor may be made from molybdenum disulphide particles with a resin binder and may include powdered carbon.
- MC - EPI: U21-B02X V01-A03 V03-A01 V03-C01A1 W04-U04
- UP - 1981-25
- UE - 1981-27; 1981-29; 1981-30; 1981-36; 1981-49; 1982-07; 1982-08; 1983-15;  
1983-41; 1984-11; 1984-36; 1988-02; 1988-30; 1993-36; 1994-17

---

- 72/77 DWPI - (C) Derwent
- AN - 1981-F3636D [23]
- TI - Multi-function touch switch - has juxtaposed switches each comprising two conductor layers, closed in response to single transverse touching force
- DC - V01 V03 W04
- PA - (EVEN/) EVENTOFF F N
- IN - CHRISTIANSEN MT; EVENTOFF FN; TCHEREPNIN SA; CHRISTIANS MT
- NP - 2
- NC - 2
- PN - US4268815 A 19810519 DW1981-23 \*
- DE3044384 C2 19940511 DW1994-17 H01C-010/12 13p  
AP: 1980DE-3044384 19801125
- PR - 1979US-0097610 19791126; 1983GB-0018533 19770916; 1983GB-0018534

19800930; 1980US-0110416 19800107; 1980US-0135386 19800331;  
1980US-0140921 19800416

IC - H01C-010/12 H01C-010/10 H03K-017/56

AE - US4268815 A

The touch switch unit has a first semiconductor composition layer disposed on top of a first conductor layer which is affixed to a first base member. A second semiconductor composition layer opposing the first semiconductor in spaced relationship to it is disposed on a second conductor layer which is itself disposed on the bottom surface of a second support member. A third conductor layer is also disposed on the top surface of the second support member in opposing spaced-apart relationship to a fourth conductor layer disposed on the bottom surface of a third support member.

- The second and third support members and the affixed conductor layers and semiconductor layers are resiliently deformable in a transverse axis in response to a transverse touch force to thereby cause electrical contact between the second and third conductor layers to provide a closed switch and the first and second semiconductor to provide a second closed switch in series with a pressure sensitive resistance.

DEAB- DE3044384 C

The pressure transducer uses a resistance element, exhibiting a resistance value which varies as a reciprocal of the applied perpendicular pressure. The resistance element has 2 semiconductor resistance layers (106,114) between 2 conductor elements (104,112), each carrying one of these layers.

- Pref. the resistance layers are formed from molybdenum disulphide using particles with a particle size of between 1 micron and 10 micron suspended in a binder. At least one of the conductor elements is pref. elastic, or coupled to an elastically deformable membrane.

- USE - For pressure-sensitive switch, e.g. for switch keyboard.  
((Dwg.1/14))

MC - EPI: V01-A03 V03-A01 V03-A02 V03-C01A3

UP - 1981-23

UE - 1994-17

Search statement 4

---